P2.47: CAROTID PATHOLOGY AND RISK FACTORS IN HYPERTENSIVE PATIENTS FOR CEREBROVASCULAR DISEASE - CORRELATIVE CLINICAL, NEUROSONOGRAPHIC AND ECHOCARDIOGRAPHIC STUDIES


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SMOKING HYPERTENSIVE MEN HAVE MORE PRONOUNCED EARLY ARTERIAL DAMAGE AS COMPARED TO NON-SMOKING HYPERTENSIVE MEN WITH HIGHER BODY MASS INDEX

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Abstracts

Objective: It is well known that smoking and obesity are cardiovascular risk factors. However, many smokers fear to stop, thinking that following increase in weight will counterbalance the positive effect of smoking cessation. Our aim was to analyze the effect of smoking and obesity on early arterial damage in hypertensive men.

Methods: Hypertensive men without cardiovascular disease were included into the study (n=88, age 48.8±4.1). All patients underwent detailed assessment of cardiovascular risk. Carotid ultrasound (Arct Lab System V.2.0), measurements of arterial stiffness and aortic blood pressure by applanation tonometry (Sphygmocor v.7.01) and sphygmomanometry (Vasera VS-1000) were performed in order to evaluate early arterial damage.

Results: Smokers (n=30) were younger as compared to non-smokers (n=58) – 48.5±3.91 vs. 49.28±5.0 years, p<0.05. Non-smokers had higher blood pressure (135.5±1.6 vs. 132.2±1.0, p<0.05), and aortic mean blood pressure (101±1.45 vs. 108±1.11), but not aortic pulse pressure (37.9±7.4 vs. 37.3±10.7, ns). However, the aortic augmentation index AIx/HR (22.5±4.7 vs. 15.6±8.9, p<0.001), heart-ankle stiffness index adjusted for blood pressure (CAVI-right 7.9±0.9 vs. 7.3±1.3, CAVI-left 7.8±0.9 vs. 7.2±1.2, p<0.01) and intima media thickness (0.65±0.17 mm vs. 0.56±0.13 mm, p<0.05) were significantly higher in smokers as compared to non-smokers. Smokers also had higher prevalence of the carotid plaques (p<0.05). Carotid-ankle and carotid-femoral pulse wave velocity (Sphygmocor) didn’t differ significantly (respectively, 9.2±1.5 vs. 9.25±1.1 m/s, 8.6±1.6 vs. 8.54±1.3 m/s, ns).

Conclusions: Although non-smoking hypertensive patients tend to be older and more obese, the smokers have worse arterial parameters in our study group.

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SMOKING HYPERTENSIVE MEN HAVE MORE PRONOUNCED EARLY ARTERIAL DAMAGE AS COMPARED TO NON-SMOKING HYPERTENSIVE MEN WITH HIGHER BODY MASS INDEX

EVALUATION OF CENTRAL BLOOD PRESSURE AND AUGMENTATION INDEX IN PATIENTS WITH ISOLATED AMBULATORY AND ISOLATED OFFICE HYPERTENSION: THE VOBARNO STUDY

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Different BP patterns have been identified by the use of office and 24 hours BP measurement: sustained normotension(NT), isolated office hypertension(ISH), isolated ambulatory hypertension(IAH) and hypertension (HT). Pulse-wave analysis has been proposed for evaluation of central BP: "augmentation index"(AIx) as an accepted indirect index of arterial stiffness. Aim of our study was to assess the relationships between PWA and BP patterns in a general population in Northern Italy.

Methods In 242 untreated subjects: age 54±9 yrs. BMi 25±4.4, 47% males) radial artery applanation tonometry and PWA were used to derive central aortic pressures and AIx. All subjects underwent laboratory examinations and clinic and 24 h BP measurement. - Subjects were divided into subgroups: NT (office BP<140/90 and 24 h BP<125/80 mmHg), IAH (office BP>140/90 and 24 h BP<125/80 mmHg), IAHI (office BP<140/90 and 24 h BP<125/80 mmHg) and HT (office BP>140/90 and 24 h BP<125/80 mmHg).

Results: Patients with IAH and HT were older than NT (59.5±8.4 and 53.9±1.3 vs 51±1.6 yrs p<0.01), BMI was higher in IAH and HT than in NT (25.5±3.9 and 26.8±1.4 vs 23.7±3.3, p<0.01). After adjusting for confounding variables (including also mean BP and HR) AIx was significantly higher in IAH, IAH and HT in comparison to NT (31.1±1.0, 30.8±1.8, 31.3±1.0 vs 26.6±1.0, p<0.01). Central SBP was significantly higher in HT, but also in IAH and IAH, than in NT (120±5.7, 120±6.0, 121±1.0 vs NT 117±8.0 mmHg, p<0.01). Conclusion: In a general population sample central SBP and AIx are greater in patients with sustained, office or ambulatory hypertension. In IAH, despite normal brachial BP, central BP is significantly increased, possibly contributing to increase cardiovascular risk.

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EVALUATION OF CENTRAL BLOOD PRESSURE AND AUGMENTATION INDEX IN PATIENTS WITH ISOLATED AMBULATORY AND ISOLATED OFFICE HYPERTENSION: THE VOBARNO STUDY

P2.45

RELATION BETWEEN PULSE WAVE VELOCITY AND PREDICTORS OF CLINICAL OUTCOME IN ARTERIAL HYPERTENSION

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Objective: to evaluate the relation between pulse wave velocity (PWV), an independent marker of cardiovascular risk and other parameters with prognostic significance: intima media thickness (IMT), left ventricular hypertrophy (LHV) and flow mediated vasodilation (FMD) in patients with essential arterial hypertension.

Material and Methods: 142 hypertensive patients (aged 50-75 years, 65% females, without diabetes) were studied before and after 6, 12 months of treatment with ACEI/channel blockers + Indapamide. PWV was assessed using Compilor method, IMT and FMD using carotidian/brachial ultrasound respectively. LHV was defined by index of mass (LVMi) and geometric patterns.

Results: 1. PWV is strongly related with LVMi and concentric hypertrophy irrespective the gender, moment of evaluation or regimen of treatment (r=0.42, p<0.03). 2. Corelation with FMD exists only after adjusting for cardiovascular risk factors (ANCOVA).

Conclusion: our results suggest the complex interrelation between non-invasive parameters of atherosclerosis, which is influenced by cardiovascular and other risk factors. The combination of these measurements is of stronger clinical relevance.

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RELATION BETWEEN PULSE WAVE VELOCITY AND PREDICTORS OF CLINICAL OUTCOME IN ARTERIAL HYPERTENSION

P2.46

P2.44

INCREASED PULSE PRESSURE IS ASSOCIATED WITH LONG LEFT VENTRICULAR EJECTION DURATION IN ISOLATED SYSTOLIC HYPERTENSIVES

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Background: Apart from stiff arteries, increased pulse pressure is associated with increased left ventricular (LV) contractility. We investigated whether elevated LV performance can be derived from carotid artery diameter waveforms in hypertensives.

Methods: We obtained common carotid artery (CCA) diameter waveforms by ultrasonography in 8 isolated systolic hypertension (ISH) patients (sys/dia: 154±177/77±13 mmHg, age 70±8 yrs). By dedicated signal processing we obtained, with good precision (<10%), left ventricular isovolumic contraction (ICT) and ejection durations (ET) from the diameter curve, as well as diastolic diameter (Dd), distensibility (DD) and intussusception (DD/Do), and distensibility (DC) and compliance coefficients (CC).

Results: DD was 7.9±1.0 mm, DD was 0.30±0.12 mm, DD/DD thus 4.5±2; pulse pressure was 77±16 mmHg. DC was 10±5 mmHg. CC was 0.5±0.2 mm²/kPa, clearly linking the elevated pulse pressure to reduced arterial stiffness. Heart rate was 76±18 min⁻¹ while LV ICT and ET were 40±7 ms and 31±146 ms, respectively. LV dP/dtmax, estimated from the diastolic blood-pressure-to-ICT ratio, was 1991±566 mmHg/s, suggesting no conspicuous contribution of LV contractility to increased pulse pressure in ISH. Within the group, however, there was a large spread in LV performance primarily related to ET and heart rate. Interestingly, ET showed a strong correlation with pulse pressure (r²=0.85, p<0.01), suggesting long ejection duration contributes to high pulse pressure in some patients.

Conclusions: Increased left ventricular performance, as reflected by ejection duration, can be observed and discriminated in isolated systolic hypertensions by diameter waveform analysis.

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P2.47

CAROTID PATHOLOGY AND RISK FACTORS IN HYPERTENSIVE PATIENTS FOR CEREBROVASCULAR DISEASE - CORRELATIVE CLINICAL, NEUROSONOGRAPHIC AND ECHOCARDIOGRAPHIC STUDIES

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P2.48 ARTERIAL HYPERTENSION AS A PROGNOSTIC FACTOR IN THE EARLY EVALUATION OF PATIENTS AFTER MYOCARDIAL REvascularization SURGERY
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Objectives: to see the prevalence and clinical evolution of hypertensive patients after myocardial revascularization surgery (MRS) in the Coronary Unit.

Methods: a retrospective study for the evaluation of the characteristics and the evolution, in the Coronary Unit, of 72 patients (pts) that underwent MRS.

Results: the prevalence of AHT before surgery was 88.8%, (61% treated with beta blockers, 51% ACEI, 12% received calcium antagonists and 15% diuretics). From the hypertensive pts, 60.6% presented AHT during the early postoperatory of MRS. 3. AHT was not significantly associated with bleeding or taquiarrhythmias. 4. Beta Blockers and ACEI were the drugs prescribed to the pts after the acute phase of MRS in the majority of the cases.

Conclusions: the study confirms clinical impact of carotid pathology alone or its association with other RF is under consideration. The changes of variables of hemorheology, lipids, blood pressure are related to other RF for CVD.

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P2.49 THE ASSOCIATION OF ARTERIAL STIFFNESS WITH ERECTILE DYSFUNCTION IN MIDDLE-AGED MEN WITH METABOLIC SYNDROME
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Background: Erectile dysfunction (ED) has been considered as a clinical manifestation of a generalized arterial disease. Aortic stiffness and wave reflections are early markers of vascular changes associated with metabolic syndrome (MetS). We evaluated the possible association between aortic stiffness, wave reflections and ED in middle-aged patients with MetS.

Methods: Two groups of subjects with MetS (mean age: 48 years) were investigated: 75 men with ED of vascular origin and 55 men with normal erectile function matched for age, body mass index (BMI), systolic and diastolic blood pressure and heart rate and smoking habits. MetS was defined according to the ATP III criteria. ED diagnosis and score were evaluated according to the International Index of Erectile Function (IIEF) questionnaire. Carotid-femoral Pulse Wave Velocity (PWV) was measured as an index of aortic stiffness and radial Augmentation Index (AIx) as a measure of wave reflections.

Results: PWV was higher in patients with ED than in the control group (8.3 ± 1.1 vs 7.9 ± 0.8 m/s, P = 0.05). Axt did not differ (24.3 ± 10 vs 23.9 ± 11, P = NS). To analyze the independent predictors of IIEF score, a stepwise linear regression analysis was performed using, BMI, blood pressure, waist circumference, lipid profile, hsCRP and fibrinogen as independent variables. IIEF was independently associated only with PWV (beta = -0.273, t = -1.363, P = 0.02).

Conclusion: in middle-aged subjects with MetS, the presence of ED is associated with a selective alteration of central PWV. This finding suggests that this group of patients may be at greater cardiovascular risk.

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P2.50 ENDOTHELIUM DYSFUNCTION IS THE RISK FACTOR FOR CARDIOVASCULAR EVENTS IN METABOLIC SYNDROME PATIENTS WITHOUT EVIDENCE OF CORONARY HEART DISEASE
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Background: Impaired function of endothelium has been reported to be the initial step in atherosclerosis and thus may be seen as either independent cardiovascular risk factor or a marker of a present underlying abnormality.

Materials: 302 metabolic syndrome patients were examined (aged 36.4 ± 2.1 years, 55 males). Baseline examination included routine clinical examination, laboratory tests, cardiac ultrasound, ECG- and blood pressure monitoring. As endothelium-dependent vasoreactivity is advocated as a measure of vascular health, using a high-resolution ultrasound, the diameter of the brachial artery at rest and during reactive hyperemia (endothelial-depend-ent flow-mediated dilatation, ΔFMD) was measured. Study group comprised 104 participants (37.0 ± 3.6 years, 54 males), with endothelium dysfunction (ED) at baseline, ΔFMD 189.2 ± 19.7%. Control group included 198 patients without ED (35.8 ± 2.6 years, 56 males), ΔFMD 143.5 ± 10.3%. Coronary heart disease (CHD) was excluded using coronary angiography or stress echocardiography. Follow-up assessments were performed at two and seven years (including stress echocardiography).

Results: at two years follow-up 36.5% of study group patients developed CHD comparing to 13.1% among the controls (RR = 2.78, Z^2 = 22.37); at seven years follow-up total CHD incidence was 0.865 for study group and 0.353 for controls (RR = 2.45, Z^2 = 71.71), fatal cardiovascular events were registered in 7.69% and 3.03% respectively (RR = 2.57, Z^2 = 3.325).

Conclusion: in patients with metabolic syndrome not having CHD endothelium dysfunction should be regarded as an independent risk factor.


P2.51 PRECLINICALATHEROSCLEROSIS DISEASE AND METABOLIC SYNDROME: A PREDIABETES STAGE?
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Aim: In ESH/ESC 07 Guidelines, Metabolic Syndrome (MS) and subclinical vascular disease (VD) are stressed as important markers of high risk in asymptomatic subjects. We compared the severity of VD by ultrasoundography in patients (p) with MS and Diabetes Mellitus (DM) and control (C) p. to analyze the relationship between the metabolic condition and the severity of VD.

Methods: We did in the same procedure 1) CIMT 2) Plaques characterization, 3) PWV and 4) FMD with a strict quality control. We set a score (VS) from 0 to 5 according to the severity of the VD. The CV Risk using Framing- ham score (FS) was also obtained from medical records.

Results: We performed a cross sectiona, observational study on 292 matched p., 125 C without dyslipidemia or overweight, 138 with MS (according ATP III criteria) and 29 with DM.

Abstracts